

Notice of Allowability

Application No.

10/723,107

Examiner

David N. Spector

Applicant(s)

ISLAM, MOHAMMED N.

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to FAOM.
2. ☒ The allowed claim(s) is/are 1-73.
3. ☒ The drawings filed on 25 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 20040901; 20041020
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other DETAILED ACTION.

DETAILED ACTION - ALLOWANCE

Claims 1-73 are allowed. A statement of the examiner's reasons for allowance is provided below in the paragraph which follows below. All claims thus being allowable, prosecution on the merits is closed in this application.

Reasons for Allowance

The instant application is deemed to be directed to a nonobvious improvement over conventional optical communication networks which transmit information in the optical domain using systems/methods that typically require repeated optical-to-electrical and electrical-to-optical conversions as the optical signals are routed through the network. In particular, said improvement provides optical processing/switching systems capable of using an optical router including one or more all-optical logic gates as recited in each of the instant independent claims. The phrase "all-optical" is subject to special definition in the instant specification (Page 56, Lines 21-27).

More specifically, independent claim 1 recites, *inter alia*, an optical switching system comprising "an array of blazed grating based optical switch elements" (Claim 1, Lines 11-14); independent claim 4 recites, *inter alia*, a logic gate comprising "at least a first optical amplifier and a second optical amplifier located approximately symmetrically in a Mach Zehnder Interferometer" (Claim 4, Lines 3-5); independent claim 28 recites, *inter alia*, a switching element comprising "a plurality of semiconductor optical amplifiers located on a single semiconductor substrate" (Claim 28, Lines 6-7); independent claim 44 recites, *inter alia*, a logic gate comprising "a plurality of semiconductor optical amplifiers located in an interferometer" (Claim 44, Lines 3-4); independent claim 55 recites, *inter alia*, a switching system comprising "a first all-optical processing device" (Claim 55, Line 7), "a second all-optical processing device" (Claim 55, Line 10), and "wherein at least one of the first and second all-optical processing devices comprises a plurality of semiconductor optical amplifiers located approximately symmetrically in an interferometer" (Claim 55, Lines 14-17); independent claim 57 recites, *inter alia*, a regenerative device which includes "a plurality of semiconductor optical amplifiers located on a single semiconductor substrate" (Claim 57, Lines 6-7).

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The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of applicant's independent claims, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The claimed invention is therefore considered to be in condition for allowance as being novel and nonobvious over prior art.

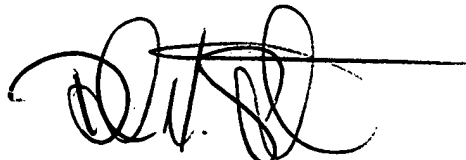
Other Remarks/Information

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any other inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Spector whose telephone number is (571) 272-2338. The examiner can normally be reached at this number Monday through Friday between 6:00 AM and 2:30 PM. The fax number for the organization where this application is assigned is (703) 872-9306.

December 22, 2004

A handwritten signature in black ink, appearing to read 'D. N. Spector', with a horizontal line extending to the right.

DAVID N. SPECTOR
PRIMARY EXAMINER